BRIEFING: MARCH 8, 2016 BOARD MEETING AGENDA ITEM #3

TO: **Chairman Richard and Board Members**

FROM: **Mark McLoughlin, Director of Environmental Services**
Margaret Cederoth, RDP Sustainability Manager

DATE: **March 8, 2016**

RE: **Consider Directing Staff to Negotiate and Execute an Interagency Agreement with the California Department of Forestry and Fire Protection for Urban Forestry Services**

Background

The California High-Speed Rail Authority (Authority) has a policy commitment to sequester an amount of greenhouse gas emissions (GHG) equivalent to the estimated amount of direct construction emissions; that is, for construction to be zero net GHG emissions. Zero net GHG emissions is being accomplished through a number of steps, including minimization through contractual requirements for the use of new, clean, highly efficient and lowest air criteria pollutant equipment; recycling of materials to avoid landfills; and an agreement with the San Joaquin Valley Air Pollution Control District to replace high-criteria pollutant emission equipment and engines. The program is also focused, per SB 535, to providing direct, meaningful benefits to disadvantaged communities.

One part of the Authority's broad, multi-pronged approach to offset construction emissions through investments that benefit California's disadvantaged communities and the environment, is an interagency agreement with the California Department of Forestry and Fire Protection (CAL FIRE) to fund existing CAL FIRE programs to plant trees as a sequestration and GHG avoidance activity.

CAL FIRE is a State of California emergency response and resource protection department. The agency mission emphasizes the management and protection of California's natural resources, including protecting and preserving timberlands, wildlands and urban forests. The Resource Management Program is an integral part of that mission and includes urban and rural forestry management and tree planting grant programs. In FY14-15 CAL FIRE distributed $42 million greenhouse gas reduction funds (GGRF) to grantees for urban forestry, forest health, reforestation and fire risk reduction projects.

The Authority considered issuing a request for proposals for an independent contractor to carry out a comparable tree planting program. This proposal was found to be redundant to and more expensive than using existing State services.

The Authority proposes an interagency agreement with CAL FIRE for $6 million dollars, over a five-year period. This will provide for tree planting services through the Landowner Assistance and Community and Urban Forestry Programs. This agreement has been estimated to accommodate direct GHG emissions for construction of the first construction packages of the high-speed rail system.

Prior Board Action

In July 2013, the Authority submitted the report "Contribution of the High-Speed Rail Program to Reducing California's Greenhouse Gas Emission Levels" to the Legislature. The commitments to minimize, reduce, and sequester GHG emissions were outlined in this report.

Discussion

Operation of off-road equipment and on-road hauling burns fossil fuels which contribute to GHG emission levels. The Authority has been implementing programs to minimize GHG emissions associated with construction and, in 2013, committed to additional near-term measures to offset GHG emissions from construction. These efforts will guarantee that the program will generate GHG savings before train operations, helping to meet the goal established by AB32 to reduce GHG emissions to 1990 levels by 2020.

In June 2012 staff began researching the feasibility of urban forestry and other tree planting programs as an effective means of providing carbon dioxide sequestration to address construction impacts. Trees reduce atmospheric GHG levels in several ways:

- They are the only offset mechanism to remove GHG from the air directly. They do so by absorbing carbon dioxide and transform it into plant matter: branches, roots, trunks, and leaves
- When planted strategically, they shade buildings and block winter winds to help reduce energy use for air conditioning and heating and thereby reduce GHG emissions associated with power creation
- Through region-wide increases in canopy cover they ameliorate the urban heat island effect (the increase in temperature associated with higher levels of heat-absorbing materials such as concrete, asphalt, and building materials), also reducing energy use for air conditioning

In hot and dry climates like California's San Joaquin Valley, the GHG benefits from strategic shading and urban heat island reduction can equal or exceed those of direct sequestration. Trees provide a number of other co-benefits, including improved air quality, stormwater management, wildlife habitat, and erosion control.

Calculation of High-Speed Rail Construction GHG Emissions

The total estimate for the construction of the initial construction packages was developed based on emissions per mile for Construction Package 1 (CP1) section, extrapolated to the entire estimated length the first construction packages. The estimate of GHG emissions for construction packages consist of emissions from off-road equipment used to build the infrastructure and emissions from on-road vehicles transporting workers or material using load factors for the actual performance of equipment in the field.

Construction emissions were calculated using OFFROAD 2011 and EMission FACtor (EMFAC) 2011. The OFFROAD series of models are the California Air Resources Board's (ARB) tool for estimating GHG emissions for off-road equipment, such as excavators, bulldozers, and graders. The EMFAC series of models are ARB's tool for estimating GHG emissions from on-road vehicles such as automobiles and trucks moving workers and materials. Emissions are calculated using vehicle miles travelled estimates and appropriate emission factors from EMFAC2011. The model also reflects the GHG emissions benefits of ARB's recent rulemakings including on-road diesel fleet rules, Pavley Clean Car Standards, and the Low Carbon Fuel standard. ARB has recently released EMFAC2014 and subsequent construction package emissions burdens will be calculated using this update.

The GHG emissions estimate for construction of the first construction packages is approximately 200,000 metric tons of carbon dioxide equivalent (MTCO2e). To put that in perspective, the projected construction emissions would take place over a period of over ten years. However, current estimates show the project reducing that amount of GHG emissions in the first year of operation, and then increasing reductions annually thereafter.

Tree Program Benefit Calculations and Program Performance

The GHG emissions benefits resulting from tree planting will be quantified using a model created by the US Forest Service for use with the ARB's Compliance Offset Protocol for Urban Forest Projects and a model approved for use with the Climate Action Registry's Forest Project Protocol.

The Authority and its Rail Delivery Partner will confirm emissions reductions through the tree planting program by using the referenced models and reported information from CAL FIRE concerning the type, size and location of trees planted.

Recommendations

It is recommended that the Board formally commit to a carbon emissions reduction program to offset construction emissions by directing staff to negotiate and execute an interagency agreement with CAL FIRE not to exceed $6 million dollars over a five-year period.

Attachments

– Draft Resolution #HSRA 16-06

– *Contribution of the High-Speed Rail to Reducing California's Greenhouse Gas Emissions Levels.* June 2013.